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27 September 1951

MEMORANDUM FOR: CHIEF EE

SUBJECT: BGSPEED Transmitter, Medium Wave

REFERENCE: Secret memo. dtd 10 September 1951 from Assistant Director for Communications to Chief, EE; Subject: Project BGSPEED, EE-10.1

1. This office does not feel that the referenced memorandum directly answers the question posed, to wit: Will a 1000 watt medium wave voice broadcast transmitter mounted on a small vessel produce a readable signal in a target area in excess of 65-75 miles away, even during a limited number of hours each day?

2. As you will recall, preliminary study and actual operating tests in this country showed that during darkness hours it was possible to "skip" a good signal into the target under the conditions listed above.

3. Subsequent tests in the actual area of operation produced completely negative results. Although careful and repeated operating tests were run under every conceivable condition with the single exception that the distance never exceeded 300 miles, no satisfactory signals were detected beyond ground wave distance (50-65 miles).

4. In explaining the apparent disparity between the tests run in the U.S. and those in Athens, the Athens technicians have pointed out that two important test conditions which apply to the operational area were not taken into account in the U.S. tests; namely, the relatively high electrostatic noise level of the lower Balkan area and the extreme adjacent channel interference from other radio stations in the area. The practical result of operating under these conditions is that the transmitted signal must arrive at the target at a much higher level than under better noise level and interference conditions. To show the actual differences involved in the tests mentioned in paras 2 and 3 above, noise level is graded from 1 to 4, with 1 representing the least noise and 4 the most. Washington is in a Grade 2 area, Athens in a Grade 3. The adjacent channel interference, as pointed out earlier, is extreme in the Balkans area, and was non-existant in the U.S. tests since they were conducted after local stations left the air.

5. It, therefore,

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5. It, therefore, appears that the answer to your question is as follows:

a. A 1 KW transmitter mounted aboard ship, with the resulting limitations on the antenna array, cannot produce a readable signal at any time of day at any distance exceeding 50-65 miles, using the lower Balkans as a target area.

b. At present there is no indication that the target area under discussion can be serviced by any ship mounted medium wave transmitter due to the limiting factor on power and size of the transmitter and size and configuration of the antenna caused by ship mounting.

c. Increasing the power output to 10, 20, or 50 KW, and using an efficient, land based antenna would enhance the possibility of overcoming the local noise level and adjacent channel interference, but poses operational cover problems as yet unsolved in the target area.

6. It is the recommendation of this office, therefore, that no further effort be expended to mount medium wave transmitters aboard boats in the Balkans area, that the Office of Communications offer to field test the present equipment from shore based installations be accepted on the basis that even negative results will enable intelligent decisions to be made concerning future use of medium wave equipment in the area, and that disposition of the BGSPEED radio equipment be carried out along the lines suggested in [ ] and the technical reports submitted by Athens Communications which are on file in EE-1.

[redacted]

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